# CADMIUM

Also known as: Cadmium sulfate 10124-36-4, Cadmium chloride 10108-64-2, Cadmium oxide 1306-19-0, Cadmium acetate 534-090-8
Chemical reference number (CAS): 7440-43-9

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## WHAT IS CADMIUM?

Cadmium is a metal found naturally in the earth's crust. Pure cadmium is a soft, silver-white metal; however, it's unusual to find it in its pure form. It's commonly found in combination with other elements such as oxygen (cadmium oxide) or sulphur (cadmium sulphate).

Cadmium is also used in industry. The cadmium used in industry is a byproduct of zinc, lead, and copper refining. Industrial uses of cadmium include production of metal plating, rechargeable batteries, paint pigments, and plastics.

Cadmium can be found in dust. The body does not readily release cadmium once inhaled or ingested. Exposure to low doses of cadmium over a long time can build up to a toxic level.

## HOW ARE PEOPLE EXPOSED TO CADMIUM?

**Drinking/Eating**: People can be exposed to cadmium when they eat plants grown in contaminated soil, or when they eat fish from contaminated water. Cadmium occurs naturally at low levels in many foods. The normal intake of cadmium (1-3 micrograms/day) does not appear to cause health problems. People can be exposed to increased amounts of cadmium by drinking contaminated water.

Contamination of drinking water typically results from improper disposal of industrial chemicals.

**Breathing**: Cadmium is found in smoke from burning fossil fuels, municipal wastes, and cigarettes. People who smoke cigarettes have higher cadmium levels in their bodies than nonsmokers. Industrial facilities that process metal can create high levels of cadmium in the air and significantly increase the exposure of people living or working near them.

**Touching**: Cadmium is not easily absorbed through the skin.

## DO STANDARDS EXIST FOR REGULATING CADMIUM?

**Water**: The state and federal drinking water standards are both set at 5 parts per billion of cadmium. We suggest you stop drinking water that contains more than the standard.

**Air**: No standards exist for cadmium allowed in the air of homes. However, there are workplace limits. We use a formula to convert workplace limits to home limits; inhalation levels should be no higher than 0.0002 milligrams of cadmium per cubic meter of air ($mg/m^3$). Levels above 0.0035 $mg/m^3$ increase the chance of lung and kidney injury. Long-term exposure to air containing cadmium dust or fumes increases a person's lung cancer risk.

## WILL EXPOSURE TO CADMIUM RESULT IN HARMFUL HEALTH EFFECTS?

The following symptoms may occur immediately or shortly after exposure to high levels of cadmium:

- Stomach irritation after ingestion of contaminated food or water.
- Lung irritation following inhalation of cadmium particles or fumes at levels greater than 300 $mg/m^3$.

The following health effects can occur after several years of exposure to cadmium:

**Cancer**: Cancer can develop after long-term, high-level exposure to airborne cadmium.

**Reproductive Effects**: Human reproductive problems are not associated with exposure to cadmium.

**Organ Systems**: Lung disorders, including emphysema or bronchitis, can develop after long-term exposure to cadmium in air.

Kidney damage and/or kidney stones can form as a result of eating, drinking, or breathing elevated levels of cadmium.

In general, chemicals affect the same organ systems in all people who are exposed. However, the seriousness of the effects may vary from person to person. A person's reaction depends on several things, including individual health, heredity, previous exposure to chemicals including medicines, and personal habits such as smoking or drinking.

It is also important to consider the length of exposure to the chemical; the amount of chemical exposure; and whether the chemical was inhaled, touched, or eaten.

*Seek medical advice if you have any symptoms that you think may be related to chemical exposure.*

This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

## FOR MORE INFORMATION

- Poison Control Center, 800-815-8855
- Your local public health agency
- Division of Public Health, BEH, 1 West Wilson Street, Rm. 150, Madison, WI 53701-2659, (608) 266-1120 or Internet: http://www.dhfs.state.wi.us/eh

Prepared by the
Wisconsin Department of Health and Family Services
Division of Public Health with funds from the
Agency for Toxic Substances and Disease Registry,
Public Health Service,
U.S. Department of Health and Human Services.

(POH 4591 *Revised* 12/2000)